IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:	)
	)
Ajith K. Kumar et al.	) Group Art Unit: 3663
	) Examiner: Mancho, Ronnie M.
Title: MULTI-LEVEL RAILWAY OPERATIONS OPTIMIZATION SYSTEM AND METHOD	) Confirmation No.: 3281
	)
	)
Serial No.: 10/736,089	)
	)
Filed On: December 15, 2003	)

Shelton, Connecticut – February 24, 2011

VIA EFS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO OFFICE ACTION

PETITION FOR EXTENSION OF TIME TO RESPOND

The Applicants hereby petition the Director of the United States Patent and Trademark Office to extend the time for reply to the Office Action dated September 2, 2010 for three (3) months, from December 2, 2010 to March 2, 2011. Please charge deposit account number 09-0470, in the amount of $1,110.00 to cover the costs of the extension.

AMENDMENT

In response to the non-final Office Action of September 2, 2010, please amend the above-referenced application as follows:

Amendments to the claims are reflected in the listing of claims, which begins on page 2.

Remarks begin on page 6.

AMENDMENTS TO THE CLAIMS

Please amend claims 14, 16 and 50 as set forth following. Please cancel claims 1, 3, 8, 15, 52-58, 62 and 76 without prejudice or disclaimer.

The following listing of claims will replace all prior versions and listings of claims in the application:

1-13. (cancelled).

14. (currently amended) A multi-level system for management of a railway system and its operational components, the railway system comprising:

a first level configured to control a servicing operation within the first level, said first level including first level operational parameters defining changes in operational characteristics of service facilities of a ~~the~~ railroad infrastructure and data of the first level, said controlling a servicing operation comprising issuing a work order to a service facility for implementing the servicing operation, said work order comprising at least one of the following: refueling instructions, scheduling a work bay, scheduling a work crew, scheduling a tool, or ordering a part; ~~and~~

a second level configured to control an operation within the second level, said second level including second level operational parameters defining changes in the operational characteristic and data of the second level, wherein the second level is a sub-level of said first level;

said second level including a movement planner for analyzing the second level operational parameters for a plurality of trains operating within the railway system, the second

level operational parameters including a fuel usage rate for each of the trains and congestion data for the railway system, the movement planner iteratively generating a movement plan including a trip plan for each of the trains for optimizing at least one of the second level operational parameters with respect to one of cost and scheduling;

said first level providing the second level with the first level operational parameters at regularly scheduled intervals, and the second level providing the first level with the second level operational parameters at periodic intervals; and

said controlling the operation within the first level and said controlling the operation within the second level each being a function of both the first and second level operational parameters.

15. (cancelled)

16. (currently amended) The system of claim 14 wherein at least one of the first level operational ~~parameter~~ parameters and second level operational ~~parameter~~ parameters are indicative of an economic valuation of the time of delivery of cargo carried in the railway system.

17. (cancelled)

18. (previously presented) The system of claim 14 wherein the operational parameters are indicative of predetermined changes in conditions over a period of time.

19. (original) The system of claim 18 wherein the operational parameters are indicative of a rate of change in the conditions.

20. (original) The system of claim 19 wherein the rate of change is with respect to time.

21. (original) The system of claim 19 wherein the rate of change is the change in one condition with respect to another.

22. (previously presented) The system of claim 14 wherein an operational parameter of the second level relevant to the system optimization parameter is communicated periodically from the second level to the first level for adjusting the first and second level operational parameters based thereon.

23-25. (cancelled)

26. (previously presented) The system of claim 22 wherein controlling the operation within the first level and controlling the operation within the second level includes identifying operating constraints and data at one of the first and second level and communicating these operating constraints and data to another of the first and second level to improve performance of the operation at the another level.

27-49. (cancelled)

50. (currently amended) A system for management of a multi-level railway system and its operational components, the railway system comprising:

a first level including first level operational parameters defining changes in operational characteristics of service facilities of the railway system and data of the first level, said operational characteristics comprising availability or cost of fuel, work crews, maintenance bays, tools, replacement locomotives, or parts; and

a second level including second level operational parameters configured to control an operation within the second level as a function of the first level operational parameters and second level operational parameters and wherein the second level operational parameters are indicative of changes in operational characteristics and data of the second level, the second level operational parameters comprising a fuel usage rate for each of a plurality of trains in the railway system and congestion data for the railway system, wherein the second level is a sub-level of said first level, said second level including a movement planner for analyzing the second level operational parameters for each of the trains, the movement planner iteratively generating a movement plan including a trip plan for each of the trains for optimizing at least one of the second level operational parameters with respect to one of cost and scheduling; and

said second level continuously providing the first level with second level operational parameters, and wherein said first level continuously determines the first level operational parameters as a function of the provided second level operational parameters.

51-76. (cancelled)

REMARKS

The Office Action dated September 2, 2010 has been carefully considered. Claims 1, 3, 8, 14-16, 18-22, 26, 50, 52-58, 62 and 76 are pending in the present application and stand rejected in view of certain prior art. Claims 1, 3, 8, 15, 52-58, 62 and 76 are cancelled without prejudice or disclaimer. Claims 14, 16 and 50 are amended. Thus, upon entry of this amendment, claims 14, 16, 18-22, 26 and 50 are pending with claims 14 and 50 being the only independent claims.

Claim Rejections under 35 U.S.C. § 112

Claims 14-16, 18-22, and 26 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have amended claim 14 to remove the indefinite language. Accordingly, the rejection of claims 1 under 35 U.S.C. 112, second paragraph should be withdrawn and this action is requested

Additionally, the rejection of dependent claims 16, 18-22 and 26 under 35 U.S.C. § 112 should also be withdrawn in view of the amendment to the base claim 14.

Claim Rejections under 35 U.S.C. § 103

Claims 14-16, 18-22, 26 and 50 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,828,979 to Polivka et al. ("Polivka") in view of U.S. Patent Application Publication No. US 2002/0065698 of Schick et al. ("Schick"). This rejection is moot in view of the amendments made to independent claims 14 and 50.

Claim 14 has been amended herein to recite in pertinent part:

> A multi-level system for management of a railway system and its operational components, the railway system comprising: …

> a first level configured to control a servicing operation within the first level…
> a second level configured to control an operation within the second level, said second level including second level operational parameters…
> said second level including a movement planner for analyzing the second level operational parameters for a plurality of trains operating within the railway system, the second level operational parameters including a fuel usage rate for each of the trains and congestion data for the railway system, the movement planner iteratively generating a movement plan including a trip plan for each of the trains for optimizing at least one of the second level operational parameters with respect to one of cost and scheduling;

(emphasis added)

Support for the amendment of claim 14 is provided in Paragraphs [0048] – [0056] of the Specification as filed.

Polivka discloses an apparatus for controlling the movement of plural freight trains through a multiple route railway system with improved efficiency and safety. (See Polivka, Abstract.) Polivka discloses providing a movement plan for a plurality of trains over the track layouts, the plan including ETA and ETD at all stations of significance calculated on the basis of track parameters, train handling constraints, actual train position and velocity data, wind data to the extent available, and track condition data. (See Polivka, Claim 1.)

Schick discloses a method and system for managing a fleet of remote assets; in one aspect, the system includes real time data collection from each of the mobile assets, computerized analysis of the data for failure detection and prediction, and planning of maintenance activities. (See Schick, ¶ [0006] – [0007].) Other aspects of the system include development of historical information regarding actual usage of each remote asset, and the arranging of that actual usage based on a plurality of operational modes of the asset.

Additionally, service recommendations may be generated based on the actual usage of the asset (See Schick, ¶ [0007].)

Applicants respectfully submit that amended claim 14 is patentable over Polivka in view of Schick because the combination of Polivka and Schick fails to disclose or suggest "a movement planner for analyzing ... operational parameters for a plurality of trains operating within the railway system, the ... operational parameters including a fuel usage rate for each of the trains and congestion data for the railway system, the movement planner iteratively generating a movement plan including a trip plan for each of the trains for optimizing at least one of the ... operational parameters with respect to one of cost and scheduling " as recited in Applicants' amended claim 14. Nothing in Polivka or Schick, either alone or combined, disclose a movement planner for analyzing fuel usage rate for each of a plurality of trains or congestion data for a railway system for generating a movement plan including a trip plan for each of the trains as set forth in amended claim 14.

A basic requirement to establish *prima facie* obviousness under 35 U.S.C. 103(a) includes a finding that the prior art includes each of the elements claimed. (See MPEP § 2143 A. (1).) For at least the above-identified reasons, the cited combination of Polivka and Schick references does not disclose or suggest each element of amended claim 1 as required for obviousness under 35 U.S.C. § 103(a).

Thus, Applicants respectfully submit that amended claim 1 is patentable over Polivka in view of Schick and should be allowed.

Similar to claim 14, independent claim 50 is amended herein to recite:

> "A system for management of a multi-level railway system and its components and includes language similar to that of amended claim 14 including ...

> "the second level operational parameters comprising a fuel usage rate for each of a plurality of trains in the railway system and congestion data for the railway system, ... said second level including a movement planner for analyzing the second level operational parameters for each of the trains, the movement planner iteratively generating a movement plan including a trip plan for each of the trains for optimizing at least one of the second level operational parameters with respect to one of cost and scheduling; ...."

(emphasis added)

Accordingly, Applicants respectfully submit that the combination of the Polivka and Schick references fail to disclose each element of amended claim 50 for at least the same reasons set forth above with respect to amended claim 14. Thus, amended claim 50 should also be patentable over Polivka in view of Schick and this action is respectfully requested.

Dependent Claims

Dependent claims 16, 18-22 and 26 are patentable for at least the same reasons that independent claim 14 is patentable, as well as for the additional limitations recited therein.

Conclusion

In view of the foregoing, Applicants respectfully submit that the Application is in condition for allowance, and such action is respectfully requested.

It is believed that no fees or charges are required at this time in connection with the application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 09-0470.

Should the Examiner deem that any further action is necessary to place this Application in better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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